Identifying nomadic camp sites from the Classical and Late Antique periods in the Jebel Qurma region, north-eastern Jordan

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Contents

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Harmen O. Huigens

Abstract

This paper discusses the identification of nomadic camp sites in the Black Desert of Jordan between the Hellenistic and Early Islamic periods. It focuses particularly on two features that were studied through surface surveys and excavations in the Jebel Qurma region: enclosures and clearings. The archaeological remains suggest that they were used for residential purposes by short-term visitors to the region. Important in the identification and interpretation of such features are pottery sherds from the Classical and Late Antique periods. The camp sites identified in the Jebel Qurma region vary in morphology and location, and it is suggested that these differences may relate to the use of such features at different times of the year.

Keywords: nomadism, camp sites, Jebel Qurma, landscape archaeology, Classical Antiquity, Late Antiquity, Early Islamic, ceramics

Introduction

One of the most important opportunities offered by newly emerging archaeological data from the *badia* of north-eastern Jordan is the integration of those elements of the ancient societies of the southern Levant that have often been regarded in opposition to one another: the desert versus the sown, the mobile versus the sedentary, and the tribe versus the state. Such dichotomies have been criticised recently on ethnographic and historical grounds, and many researchers (*e.g.* Makarewicz 2013; Porter 2012; Szuchman 2009) have rightly argued that mobile and sedentary communities were much more integrated than previously assumed. This view takes seriously the potential contributions of communities living on the geographic fringe to wider culture-historical trajectories.

This perspective is especially welcome in the case of nomadic communities, who inhabited the *badia* during the Classical and Late Antique periods. These groups have often been marginalised in modern scholarship, for example, by describing them simply as a 'menace' and 'threat' to state systems (*e.g.* Millar 1993, 428-436; Parker 1986, 132), or by regarding them as a more or less static entity largely comparable to 'the Bedouin' as described in nineteenth and early twentieth century travelogues (*e.g.* Donner 1989; Peters 1978). In view of recent criticism (*e.g.* Hoyland 2001, 96-102; Sartre 2005), what needs to be acknowledged instead is the possibility that these nomads formed an integral part of wider socio-economic and political systems on the desert fringe. Equally important in this respect is the exploration of regional and chronological variation in nomadic systems, as these are potentially highly variable and fluid (Barfield 1993; Rosen 2017).

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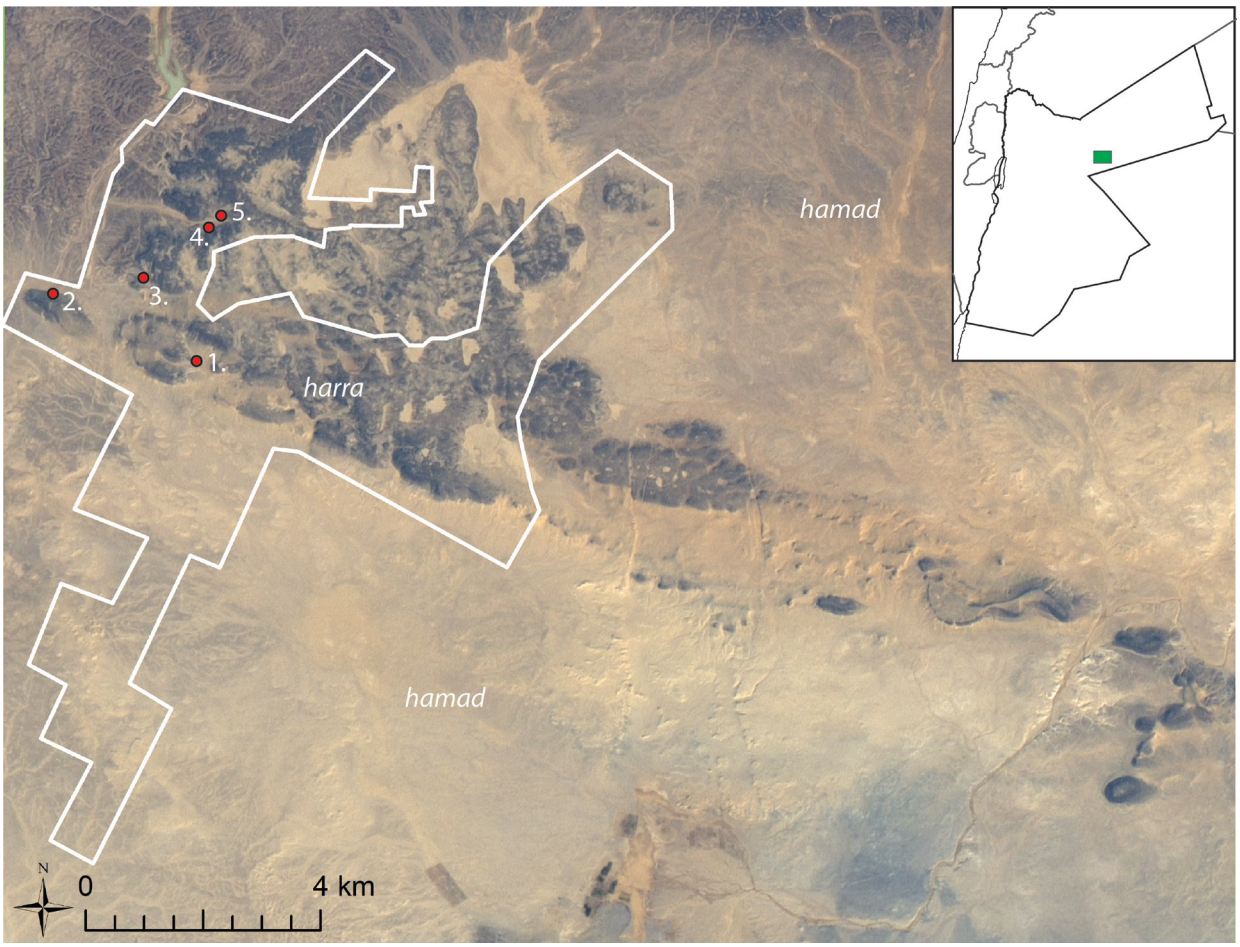

Figure 1. Map of the Jebel Qurma region indicating the surveyed area in white and the sites mentioned in the text in red: (1) QUR-11; (2) QUR-595; (3) QUR-373; (4) QUR-210; (5) QUR-735 (base image: Landsat 7, courtesy of the United States Geological Survey. Inset: location of the study area in Jordan).

Most of what is known about nomadic communities who inhabited the *badia* of north-eastern Jordan comes from Safaitic inscriptions, which are conventionally dated between the first century BC and the fourth century AD, and from ancient literary sources (Hoyland 2001). The archaeological remains of these communities, however, have been very poorly explored. Until recently, the archaeological study of historical-period nomadism in the *badia* was restricted to a handful of excavations of burial cairns (Clark 1981; Harding 1953; 1978) and the documentation of remains that were only incidentally encountered in archaeological projects that focused on the region's prehistoric past (Betts *et al.* 2013). This is unfortunate as relying solely on textual sources is problematic for a number of reasons. Firstly, the Safaitic inscriptions carved out by nomads are difficult to date accurately, are restricted in terms of content, and only provide information on those communities that were actually able to write. Secondly, Roman/Byzantine and Early Islamic literary sources may be heavily biased by their 'outsiders perspective' on nomadic communities (Hoyland 2001). There is therefore a need for a more directly informed perspective on such groups. This can be achieved by more systematic, problem-orientated archaeological research in the *badia* that focuses on nomadic communities of the historical periods.

This has been attempted by the Jebel Qurma Archaeological Landscape Project through annual, two month-long, field campaigns conducted since 2012 (cf. Akkermans and Huigens 2018). The resulting archaeological data sets are studied to explore developments in nomadic lifeways in the Jebel Qurma region during Classical and Late Antiquity (see Huigens 2019). In this paper, I will focus on, and discuss, a particular aspect of this research, namely the way in which camp sites of ancient nomads can be recognised in archaeological terms.

The Jebel Qurma region is situated *c.* 30 km east of the modern town and oasis of Azraq. The desert

environment consists of both *harrah* and *hamad* landscapes (Fig. 1). It has witnessed a long yet discontinuous history of occupation characterised by periods of intensive use alternating with phases of apparent abandonment. After a long period of apparent desertion during the second, and possibly much of the first, millennia BC (but see Akkermans and Brüning, this volume), the region was frequented again by nomadic communities between the Hellenistic to Early Islamic periods. Although probably restricted to the Hellenistic and Roman periods, the many thousands of Safaitic inscriptions and petroglyphs from the region provide the first line of evidence for this (see Brusgaard 2019; Della Puppa, forthcoming). Additionally, there are numerous archaeological remains, including camp sites, burial cairns, and artefacts left behind on the ground surface that can be associated with nomads, dateable to between the Hellenistic and Early Islamic periods.

The study of camp sites of mobile peoples of the ancient Near East is not unproblematic. Although numerous studies have shown that camp sites can persist in the archaeological record, archaeological visibility remains a problem which is not easily overcome. Only when such camp sites consist of relatively durable installations, are they fairly easily detectable. This has been the case in, *e.g.*, the Negev, where round, permanent structures (although not necessarily permanently occupied) were part of Late Antique camp sites (Avni 1996; Rosen 2017). Ceramics may also be helpful in the identification of nomadic camp sites (Cribb 1991; Grillo 2014). However, archaeologists sometimes unwarrantedly assume that the use of pottery is common throughout society (Sanders 2016). There are indeed ethnographic examples of mobile pastoralists who used wooden or metal containers rather than pots (Cribb 1991, 72-73).

In the Black Desert, the study of historical-period camp sites is restricted to ethno-archaeological studies of recent Bedouin camps (Betts *et al.* 2013). A number of remote-sensing studies have suggested that stone-built corrals are related to camping activity (Kennedy 2011; 2012; Meister *et al.* 2019) but there is still no comprehensive understanding about the date of construction and the use of these structures due to a lack of rigorous ground-truthing. The morphology of residential units like tents or huts is also completely unknown, as is the nature of other forms of material culture (notably pottery) that can potentially be encountered at camp sites. This makes it difficult to assess the nature of nomadic occupation in the *badia*, even in rather basic terms. Issues such as chronology, mobility, group size and economic practices are difficult to assess when the areas where nomads were actually living remain unexplored. This problem is addressed in this paper by providing an archaeological insight into nomadic camp sites in the Jebel Qurma region from the Classical and Late Antique periods, *c.* 300 BC to 800 AD.

Methods

A number of archaeological correlates are explored here to identify camp sites. These include, firstly, the remains of residential spaces and associated domestic activities. Although tents or huts were probably made largely of perishable materials, their footings can be observed in archaeological contexts (*e.g.* Rosen 1993; Rosen and Avni 1997). Fireplaces, used for cooking, warmth and social activities, and domestic waste, such as broken pottery vessels or remains of other utensils, may also be retrieved. Importantly, the composition of these waste materials may also be used as an indicator for camping activities. For example, limited diversity in the ceramic corpus may be used as an indication for the presence of nomadic communities (Cribb 1991, 75-79). Secondly, the occupational duration of these residential areas is explored, using the degree of architectural investment as an indicator. Although permanent architecture is not necessarily indicative of permanent occupation (cf. Hammer 2014; Kent 1991; Seymour 2009) it seems warranted to regard limited architectural investment as an indicator for short-lived occupation (Binford 1990; Diehl 1992).

A number of field methods were applied for this research. High-resolution satellite imagery was studied in order to pinpoint potential camp sites on a large geographic scale, and intensive pedestrian surveys and excavations were carried out during the field campaigns. The satellite imagery used was 1.8 m resolution Ikonos imagery, covering an area of 172 km^2 of both *harrah* and *hamad* landscapes. The total pedestrian survey area measures *c.* 52 km^2 (Fig. 1). Most of this area was covered by using intensive survey methods. In the open *hamad* landscape a formal transect survey was carried out, complemented by an extensive survey (Huigens 2015), while an intensive yet less rigid survey method was applied in the undulating and rough *harrah* landscape. Excavations focusing on camp sites were carried out at several locations.

Post-fieldwork documentation and analyses included radiocarbon dating, ceramic studies, and spatial analyses carried out in a Geographic Information System (GIS). Radiocarbon dating was carried out by the Groningen Institute for Isotope studies. Ceramic analysis included the formal documentation of pottery sherds and subsequent comparative research based on published ceramic corpora from well-stratified contexts in the southern Levant (Huigens 2019; Vijgen 2019).

Results

Survey activities in the Jebel Qurma region documented a large number of different site types dating between the Hellenistic and Early Islamic periods. These site types were defined on the basis of different archaeological features, artefacts, and epigraphic remains. Rock-art sites, comprising Safaitic inscriptions and petroglyphs,

occur widely. In total, about 10,000 inscriptions and petroglyphs have been documented (Brusgaard 2019; Della Puppa, forthcoming); they probably date to the Hellenistic and Roman periods. These carvings are confined almost entirely to the *harrah*, where they mostly occur on high places such as ridges and hill tops. Also from this period, and often spatially associated with the rock art, are a large number of monumental burial cairns (Akkermans and Brüning 2017).

In contrast, the low-lying areas of both the *harrah* and *hamad* landscapes host remains of an entirely different nature, including enclosures and clearings. Enclosures represent a well-known feature type of the Black Desert and are usually interpreted as the remains of ancient camp sites (*e.g.* Kennedy 2011; Meister *et al.* 2019). This has largely remained assumed rather than established. Clearings have remained an even more enigmatic feature type, and many remote sensing and survey projects have actually largely overlooked them (an exception is Kempe and Al-Malabeh 2010). The archaeological research on such features in the Jebel Qurma region sheds new light on the nature and chronology of these features, as presented below.

Enclosures

Numerous stone-built enclosures of different sizes and configurations have been documented through remote sensing and pedestrian surveys in the Jebel Qurma region. Many of these were already constructed in prehistoric times, given the dense lithic scatters with which they are often associated (cf. Akkermans *et al.* 2014; Huigens 2015), but they have been re-used in more recent times. The site of QUR-210 may serve as an example here. This site is situated on the lower slopes of a large valley in the *harrah* (Fig. 2). It had been occupied initially in prehistoric times, when at least some of the enclosures were constructed, given the dense lithic scatters in the enclosed spaces. The site was frequented again during the Hellenistic-Roman period, evidenced by a cluster of Safaitic inscriptions and petroglyphs situated at the centre of the site. One of these inscriptions mentions an enclosure.[1] Ceramics dating to the Late Byzantine and/or Early Islamic period were also collected at the site.

This pattern of re-use of prehistoric enclosures during the Classical and Late Antique periods is paralleled at numerous other sites in the Jebel Qurma region. The presence of domestic waste in the enclosures may indicate that they were not used exclusively for the corralling of herd animals. Instead, the enclosures may have been used, at least in part, as residential areas. In order to test this hypothesis, excavations were carried out at a number of enclosures.

One such enclosure was excavated at the site of QUR-595 – an extensive site comprising multiple enclosures and clearings. The excavated enclosure measured about 13 by 6 m and its walls were preserved up to a height of about 0.5 m (Fig. 3). Sediments had accumulated between the walls. The enclosure had been constructed within a prehistoric structure, although when exactly is uncertain. Numerous small fire pits were found within the enclosure, and radiocarbon dates from these indicate several use phases. The oldest dates were prehistoric, while a younger use phase is provided by two dates, one from the third-fourth century BC and another from the first century BC to the first century AD (Fig. 4). Additionally, a total of 65 ceramics were retrieved from the enclosure's fill. Those fragments that could be dated were from the Late Byzantine or Early Islamic periods.

Another enclosure was excavated at the site of QUR-373. This enclosure consisted of an inner compartment measuring about 7.5 m across and made of low stone walling, and an outer compartment with a diameter of about 18.5 m (Fig. 5). Prior to excavation, the enclosure was filled almost entirely by wind-blown sand deposits up to 0.65 m thick. The excavations revealed a stratigraphic sequence containing a total of 19 fire pits and one larger, ash-filled pit. The deepest and original surface within the enclosure was associated with large, elongated fire pits, which unfortunately could not be dated. However, large amounts of prehistoric chipped-stone artefacts (including many burins) associated with this surface suggest a Neolithic construction date. The sequence of fire pits covering the original surface gave a number of radiocarbon dates between the third and eighth centuries AD (Fig. 4). Also associated with this later phase of re-use were ceramics, including two nearly complete cooking pots, which can be dated on typological grounds to the seventh or early eighth century AD (Fig. 6, no. 9).

Lastly, an enclosure at the site of QUR-11 was excavated. This enclosure measures 22.6 m across and is subdivided into three compartments, enclosed by walls standing to a height of about 0.9 m (Fig. 7). The original construction date of the enclosure is uncertain, given the lack of materials associated with its foundation level, but the youngest occupational deposit in the largest compartment, situated just below the present-day surface, contained a number of small fire pits. Radiocarbon dates from these pits ranged between the seventh and ninth centuries AD (Fig. 4). The ceramics that were collected from the surface during survey activities probably date to broadly the same period (Fig. 6, nos. 4-5). Excavations in the second compartment did not yield such fire pits, while the third compartment remains unexcavated.

1 C. Della Puppa, pers. comm.

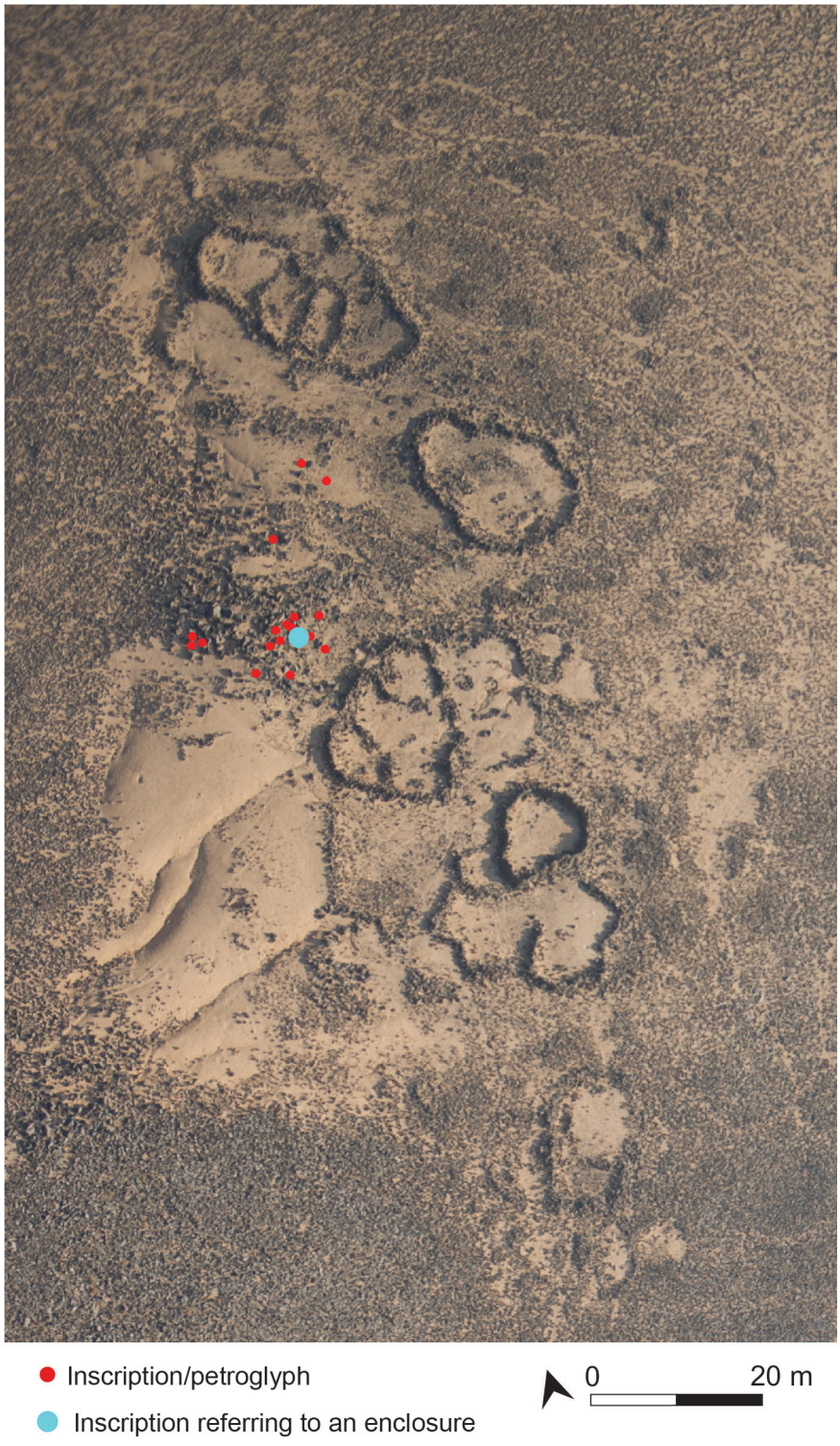

Figure 2. The site of QUR-210 in the Jebel Qurma region: a large multi-period site featuring several stone-built enclosures. One of the Safaitic inscriptions refers to an enclosure (orthorectified aerial photograph by D. Boyer, courtesy of APAAME).

Figure 3. Excavation plan of the enclosure at QUR-595, featuring a series of small fire pits within the enclosed space (drawing by M. Kriek, Jebel Qurma Project Archive).

Clearings

Survey activities in the *harrah* and *hamad* of Jebel Qurma identified a number of potential domestic areas that were defined not on the basis of architectural features but through the presence of ceramic scatters, generally in areas free of the natural rocky surface cover. Such clearings (Fig. 8) were mostly encountered on the bottom of large valleys on the edge of the *harrah* landscape. They vary considerably in size, and they may cover an area as large as one hectare. Clearance heaps were created either within the clearing itself or around its edges. The use of these clearings is not confined to

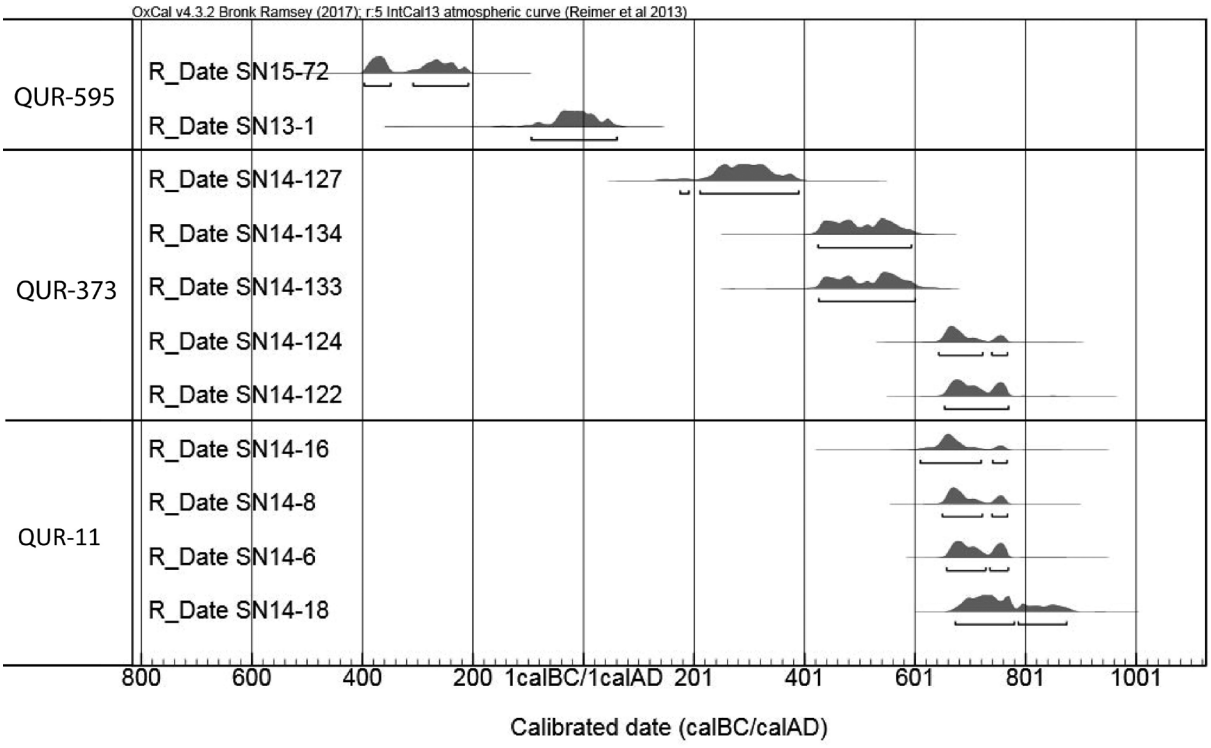

Figure 4. Radiocarbon dates from the excavated enclosures at QUR-595, QUR-373 and QUR-11 (image and calibration produced with OxCal v4.3.2; Bronk Ramsey 2009; Reimer *et al*. 2013).

a single period. Often, the remains of recent Bedouin camps, including tent pitches and associated waste, were encountered in combination with (much) older remains. This palimpsest hampers chronological differentiation between features, as recent activities may have changed the configuration of such sites.

A relevant example is the site of QUR-735, where the main feature is a large clearing situated on a valley floor. This clearing measures *c.* 120 by 90 m and is characterised by a seemingly irregular jumble of clearance heaps (Fig. 8). Prehistoric use of this area is attested by a modest lithic scatter that included a flint arrowhead. Evidence for re-occupation of the site comes from a relatively high density of pottery sherds, which were dated to the Late Byzantine period (Fig. 6, nos. 12-13). Associated outlines of domestic structures, however, were not observed. The latter is not surprising, not only because such structures may leave few architectural traces but also because the site may have been significantly modified by more recent re-use. This phase of occupation is indicated by the presence of modern Bedouin tent remains and associated waste. Similar situations were observed at many of the clearings documented through survey activities.

Ceramics

Many ceramics dating broadly to between the Hellenistic and Early Islamic (Umayyad/Abbasid) periods were collected in the enclosures and clearings (Fig. 6). Material from the preceding Iron Age and subsequent Fatimid periods is rare or absent. Most of the ceramics were highly fragmented. As a result, the number of sherds that could be dated on the basis of comparisons with published corpora is fairly low. A total of 98 diagnostic pottery fragments have been ascribed a Classical or Late Antique date so far (Huigens 2019; see also Vijgen 2019). In addition, the extensive fragmentation hindered attempts to provide a detailed assessment of the types of vessels represented at these sites. In general terms, closed forms, such as cooking pots and jars, are better represented that open forms, such as bowls (Fig. 9a). Only a single oil lamp has been identified. Particularly significant is the absence of high-quality ceramics typical of the period, such as Nabataean Painted Fine wares and *terra sigillata* wares. All of the dated ceramics are the remnants of mass-produced vessels that were brought into the Jebel Qurma region from elsewhere. Although handmade, basalt-tempered, coarse-ware sherds are also present, these are as yet often undateable (cf. Vijgen 2019). At this point, there is no reason to assume that the nomadic communities produced pots locally during this period.

Figure 5. Excavation plan of the enclosure at QUR-373, with a selection of fire pits in the inner and outer compartments of the enclosure (drawing by A. Kaneda, Jebel Qurma Project Archive).

Figure 6 (right). Selection of Hellenistic to Early Islamic-period ceramics from camp sites in the Jebel Qurma region (drawings by A. Kaneda, Jebel Qurma Project Archive).

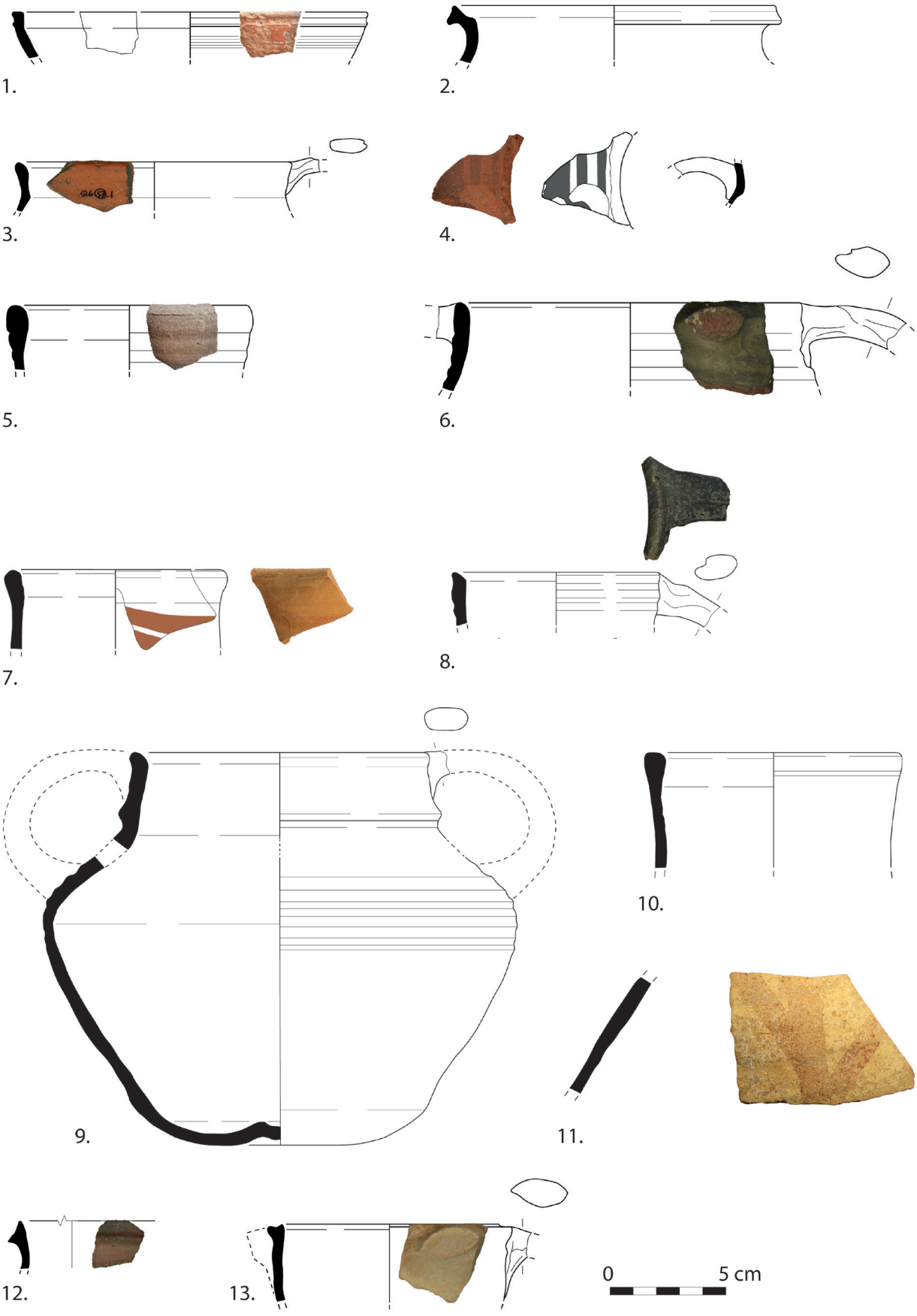
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Figure 7. Aerial view of the excavation trenches in the enclosure at the site of QUR-11 (photograph: Jebel Qurma Project Archive).

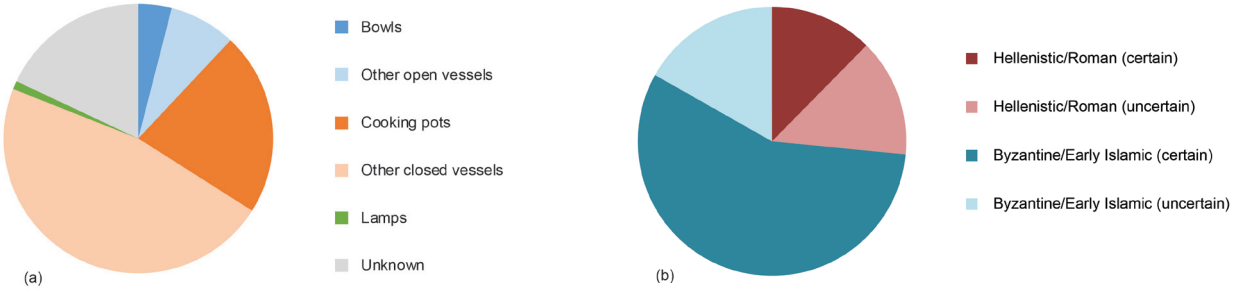

Figure 9. Proportion of (a) vessel types at Classical/Late Antique camp sites and (b) sherds per period found at camp sites.

The majority of dated ceramics belongs to the Byzantine and/or Early Islamic period (Fig. 9b). This is remarkable, since there is ample evidence for significant occupation during other periods, such as the Hellenistic-Roman period, in the form of Safaitic rock carvings and funerary monuments. Therefore, the ceramic trends do not necessarily reflect variation in occupational intensity but rather differences in the use of ceramics. This seems also to be reflected in the occurrence of pottery vessels in funerary contexts in the Jebel Qurma area. While there are many cairn burials from the period between the fourth/third century BC and the third century AD, none of these were accompanied by ceramic vessels (Akkermans and Brüning 2017). Pottery starts to appear in burials from the third century AD onwards (Huigens 2019). Containers made of metal, wood, or leather may have been the more common utensils among the inhabitants of the region during the Hellenistic-Roman

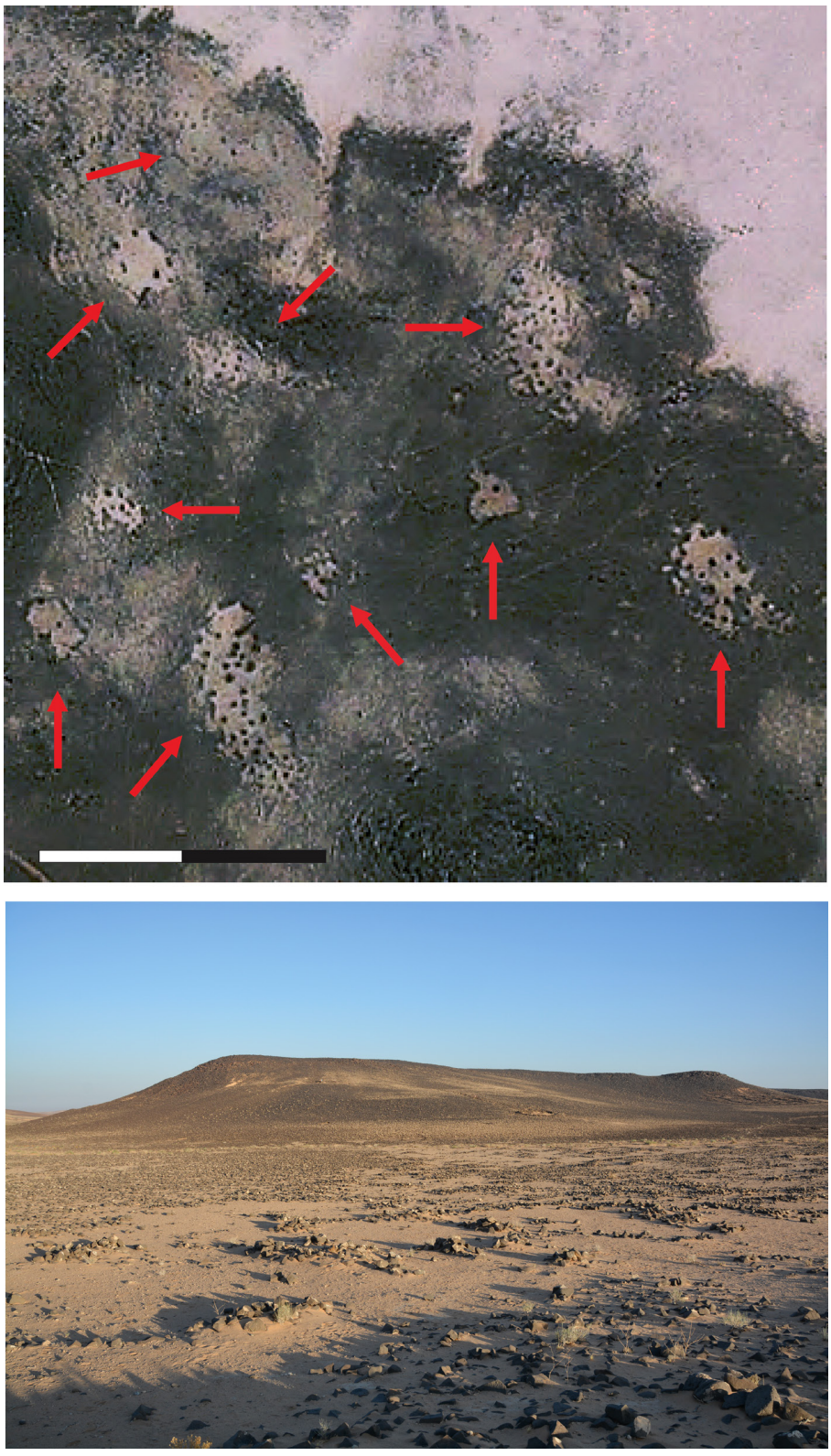

Figure 8. Clearings as visible on Ikonos satellite imagery (above), indicated by the arrows (scale: 100 m), and on the ground at the site of QUR-735 (below).

period, while the use of pottery vessels became more common during the Byzantine-Early Islamic period.

This observation has important implications for the identification and dating of potential camp sites based on surface finds, especially from the periods during which ceramics seem to be uncommon. The use of epigraphic information may to some degree be used as an alternative indicator (see above) but it should be acknowledged that camp sites, especially from the Hellenistic-Roman period, remain difficult to identify on the basis of surface finds alone.

Spatial distribution

Enclosures and clearings usually occur together within the valley systems that run down from the basalt-covered plateau in the centre of the Jebel Qurma region (Fig. 10). These are fairly secluded locations on the boundary between the *harrah* and *hamad* landscapes. Wadis typically run through such valleys, which may provide water in wet seasons. Numerous small paths usually run through these valleys as well. They were created as a natural result of people and animals travelling through the rocky terrain (Huigens 2018). These paths increase the accessibility of the basalt-covered upland, where more sustainable sources of water may be found in the form of mud flats on which surface water may be retained for weeks or even months after the occurrence of rainfall (Huigens 2019).

Although the valleys generally host clearings and enclosures alike, there are some differences between them in terms of their spatial distribution on a smaller scale. Fig. 11 shows a typical situation, in which all of the clearings are situated at the very bottom of a valley, sometimes even in the course of a wadi. However, the enclosures are situated further upslope, and the larger ones are shielded from prevailing westerly winds as they are positioned against natural flanks facing the east. Although situated within the same valley, the distance between the enclosures and clearings is often considerable, *i.e.* over 200 m.

Enclosures and clearings are not confined to large valleys. Sometimes, they are also concentrated around the base of isolated hills, again on the boundary between the *harrah* and *hamad*. In these cases, the enclosures are usually located against the eastern and north-eastern slopes of these hills, protected from westerly winds. Clearings may be situated in more exposed locations, as are the ceramic scatters identified in the Hazimah plains.

Discussion

Based on the above observations, it can be argued that both clearings and enclosures served domestic activities during the period under study. Both types of installations are associated with domestic waste in the form of pottery fragments. Also, the presence of fireplaces in enclosures suggests that these features were used, at least partially, as residential areas. Excavations have not yet been carried out within the clearings, which makes it impossible to assess whether such fireplaces were also present. Nevertheless, discard patterns documented in ethnoarchaeological studies of mobile, pastoralist camp sites show that domestic waste is usually discarded directly around residential units (*e.g.* Cribb 1991; Palmer *et al.* 2007; Simms 1988). It would therefore seem unwarranted to ascribe the ceramics found at clearings situated sometimes over 200 m away from enclosures as waste deriving from domestic activities carried out in said enclosures. Instead, it seems more reasonable that these areas were used, at least in part, for camping as well.

None of these domestic spaces show evidence for permanent occupation. There is hardly any durable architecture present at these sites that can be interpreted as dwellings, houses, and the like. Instead, the occupants of these areas must have been living in tents or huts made of perishable materials, such as wood, cloth, and hides. The characterisation of these area as 'camp sites' therefore seems warranted. The excavations in the enclosures show that at least some of the tents or huts must have been smaller than most Bedouin tents today, which can be as long as 15 m (cf. Simms 1988).

Direct archaeological evidence for pastoral activities is so far lacking. Hardly any faunal remains were retrieved during the excavations, probably due to poor preservation. Macro-remains of animal dung were also not encountered. Microscopic studies for dung remains have not yet been carried out. Therefore, evidence for pastoral production is thus far only circumstantial. If the camp sites can be related to the people who produced the Safaitic inscriptions and petroglyphs (which is possible on the basis of epigraphic evidence in a few cases), we may assume that their herd animals (camel, sheep, goat, perhaps cattle; Macdonald 1993) were also kept at these locations. The enclosures are well-suited for the keeping of animals, and some of the inscriptions indeed refer to these structures. The excavations indicate that not all of the enclosed spaces were necessarily used as residential areas, but that there may have been ample space left to pen animals. The enclosure walls could have provided protection for herd animals (especially the younger ones) against the elements, which is important during the wet and cold months of the year. The use of stone-built enclosures to provide shelter for humans and animals is widely attested ethnographically (Cribb 1991, 95-96). Furthermore, there is no evidence that points towards occupations of a different kind, such as trade caravans or military units. In fact, the ceramic finds from the Jebel Qurma region are largely in line with pottery assemblages described in (ethno-)archaeological studies of nomadic camp sites elsewhere, which are characterised by rather limited variation in vessel types and a scarcity of high-quality fine wares (in comparison with sedentary

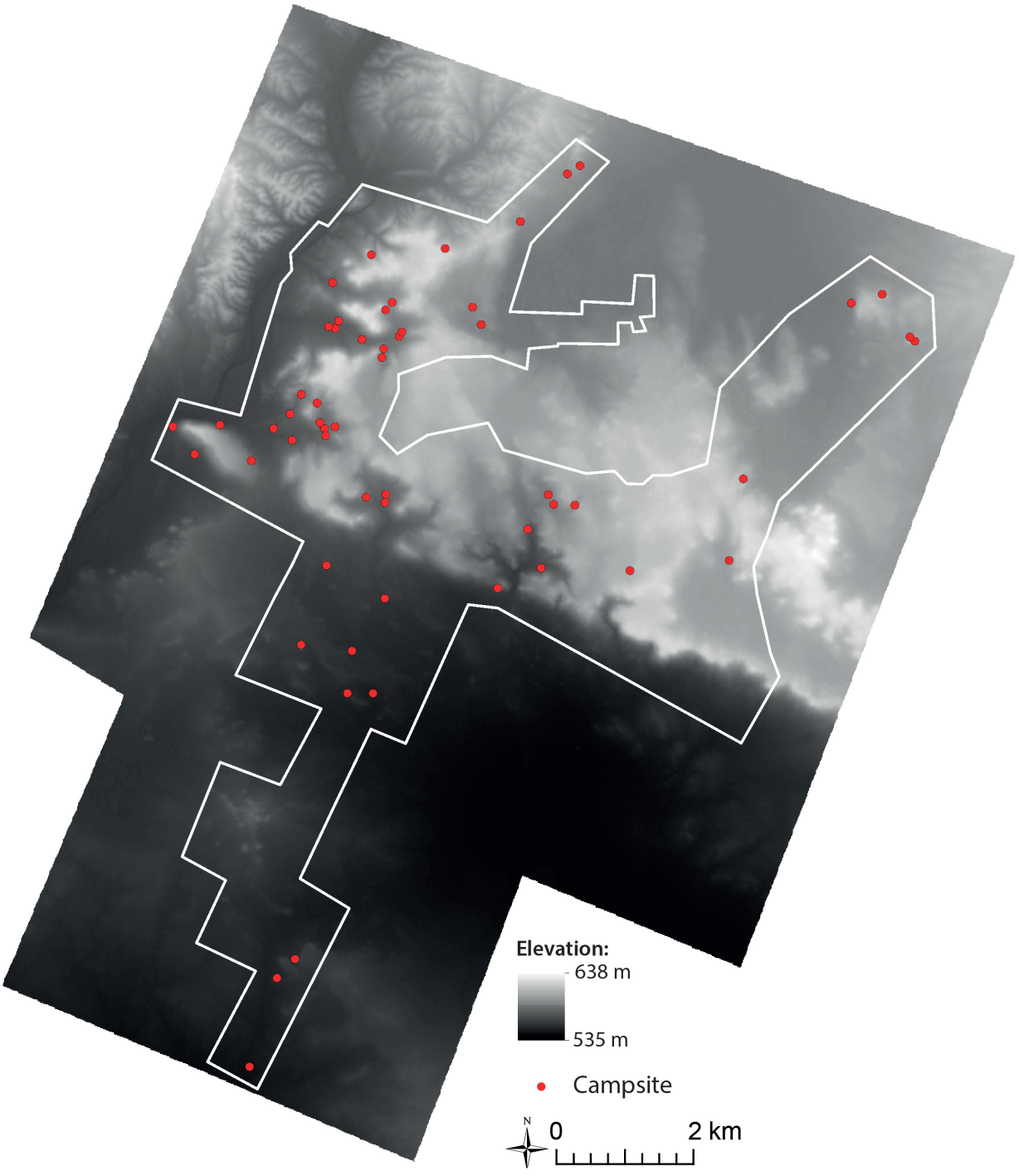

Figure 10. Distribution of Classical/Late Antique camp sites identified in the surveyed area (white) of the Jebel Qurma region (base image: WorldDEM digital elevation model).

contexts; *e.g.* Cribb 1991, 75-79; Rosen 1987; 1993; Rosen and Avni 1997). Given the considerations above, it seems reasonable to suggest that these camp sites were mainly occupied by nomads.

It is proposed here then, that between the Hellenistic and Early Islamic periods nomadic communities used both enclosures and clearings for camping and the keeping of herd animals. However, I also suggest that enclosures and

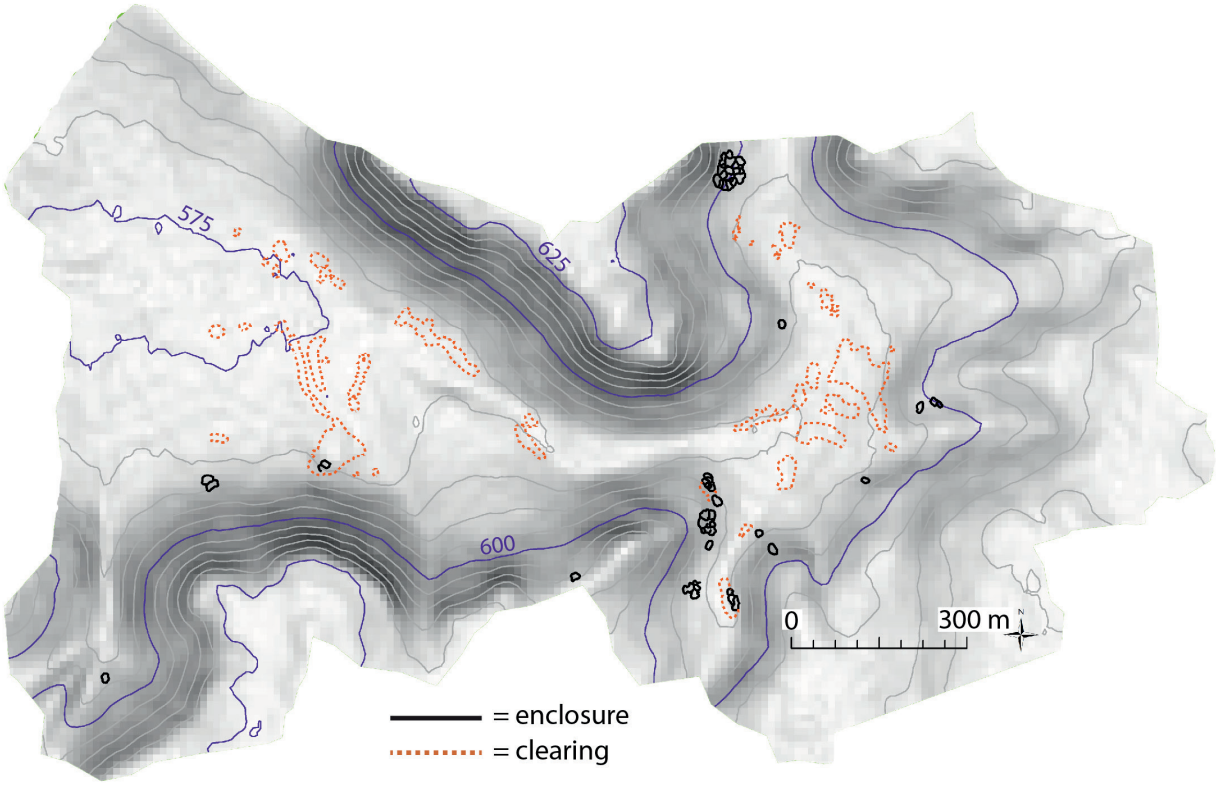

Figure 11. Distribution of enclosures and clearings in a valley in the Jebel Qurma region (base image: WorldDEM slope map with contour lines).

clearings were not necessarily occupied simultaneously. They sometimes differ considerably in terms of morphology and spatial distribution. Enclosures usually occur in rather secluded and slightly elevated locations, whereas clearings predominantly occur in more exposed areas and on the bottom of valleys, sometimes right on the edge of wadis. Enclosures and clearings that were occupied broadly during the same period are nonetheless often separated by several hundred metres, suggesting that they were not part of the same camping unit.

An explanation for this diversity in camp-site location and morphology may be found in the occupation of the Jebel Qurma region during different times of year. The hypothesis put forward here is that camp sites with enclosures were mainly used during the wet and cold winter months, while camp sites lacking enclosures (and mainly consisting of clearings) were occupied mainly during drier, warmer seasons. Diversification in terms of camp-site location and features related to different seasonal requirements is widely documented in ethnographic studies (Cribb 1991, 133-161). In relatively dry and warm periods, the valley floors may have provided easily accessible camping areas, where clearings, once created, could be re-occupied episodically. In wetter and colder conditions, however, people may have preferred using the enclosures, which may have provided protection against the elements for both people and animals, through the enclosure walls and their sheltered location. Also, the location of enclosures somewhat further upslope would keep the camps away from wadis that were prone to flooding. This compares well to nineteenth-century descriptions of Bedouin winter camps in the *harrah* (see *e.g.* von Oppenheim 1899, 219-220).

If this reconstruction is correct, it would imply that nomads frequented the Jebel Qurma region during different times of year, rather than during a single season only. On the basis of the Safaitic inscriptions, Macdonald (1992) has suggested that mobile pastoralists would normally only be present on the edges of the *harrah* at the beginning and at the end of the dry season, but the enclosures in the Jebel Qurma region may suggest that the region was frequented during the wet and cold winter season as well. This pattern is in line with the more recent use of the *badia* by mobile pastoralists, as documented by modern ethnographers. In recent times, some pastoralists preferred to reside in the *harrah* during winter and remained there after the rainy season, until the local natural resources were depleted. Others would spend the

winter in the *hamad* and would only frequent the *harrah* at the beginning of the dry season, when surface water was still present, or at the end of the summer, awaiting the first winter rains (Lancaster and Lancaster 1999, 100-102; Musil 1928, 584; Rowe 1999).

A final relevant issue is the stark increase in pottery during the Byzantine and Early Islamic periods, as opposed the Hellenistic-Roman period. I have argued above that this should not necessarily be seen as an indicator of increased activity but as an indicator of increased pottery use among mobile communities. There is at this point no definite explanation for this trend but one possibility is that it reflects closer connections between the nomadic groups in the Jebel Qurma area and sedentary communities beyond the desert during the Byzantine and Early Islamic periods. These periods are characterised by an increasing encroachment of towns and villages onto the nomadic landscapes of the eastern *badia* (see Bartl, this volume), through which contacts between mobile and sedentary communities perhaps intensified.

Conclusion and outlook

The results of the fieldwork carried out in the Jebel Qurma region allow for the archaeological identification of camp sites from Classical and Late Antiquity. It has been argued in this paper that ceramic scatters found in clearings and within enclosures represent domestic waste of occupation. The fireplaces evident within enclosures are also indicative of domestic activities. The limited degree of architectural investment at these places further suggests short-lived occupation. Direct archaeological evidence for pastoral production at these sites is thus far not available but the use of these camp sites by mobile pastoralists is inferred on the basis of epigraphic evidence, the nature of the ceramic assemblages, and the consistent use of enclosures that may have been used partially to pen herd animals. I also hypothesised (based on significant differentiation in morphology and spatial distribution) that camp sites with enclosures were used as winter camps, while sites consisting only of clearings were used in the drier and warmer times of year.

Future research may be geared towards finding more direct archaeological evidence for pastoral production during the period of study. Excavations in the Jebel Qurma region yielded hardly any macroscopic remains of herd animals, perhaps due to poor preservation. However, a number of methods may be applied in future research to find remains of herd animals on the microscopic or chemical level (see Vos, this volume). In addition, the proposed differentiation between winter and summer camps requires further scrutiny, which may be achieved by the study of plant remains from the fire pits in the enclosures. To this end, study of charred plant remains from the enclosures in the Jebel Qurma region is currently underway.

The investigation of archaeological landscapes of the *badia* is necessary to obtain a more comprehensive understanding of nomadic communities who inhabited this region during Classical and Late Antiquity. Camp sites form an important part of these landscapes, as they were the areas of residence and various kinds of economic and social activities. This study has attempted to address the nature of these areas, and may be expanded upon in future research. However, these landscapes not only include camp sites but also rock art, funerary monuments, and other installations. Future research may therefore focus on integrating these different elements in order to come to a more comprehensive understanding of the nature and development of these landscapes and their nomadic inhabitants.

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